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(12) **UK Patent Application** (19) **GB** (11) **2 278 750** (13) **A**

(43) Date of A Publication 07.12.1994

(21) Application No 9311352.0

(22) Date of Filing 02.06.1993

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(51) INT CL⁵

H04N 7/12 5/225

(52) UK CL (Edition M)

H4F FD27C9 FD3 FD83B FJS

(56) Documents Cited

EP 0531926 A1

EP 0449325 A2

EP 0250147 A2

EP 0038557 A2

US 4998800 A

(58) Field of Search

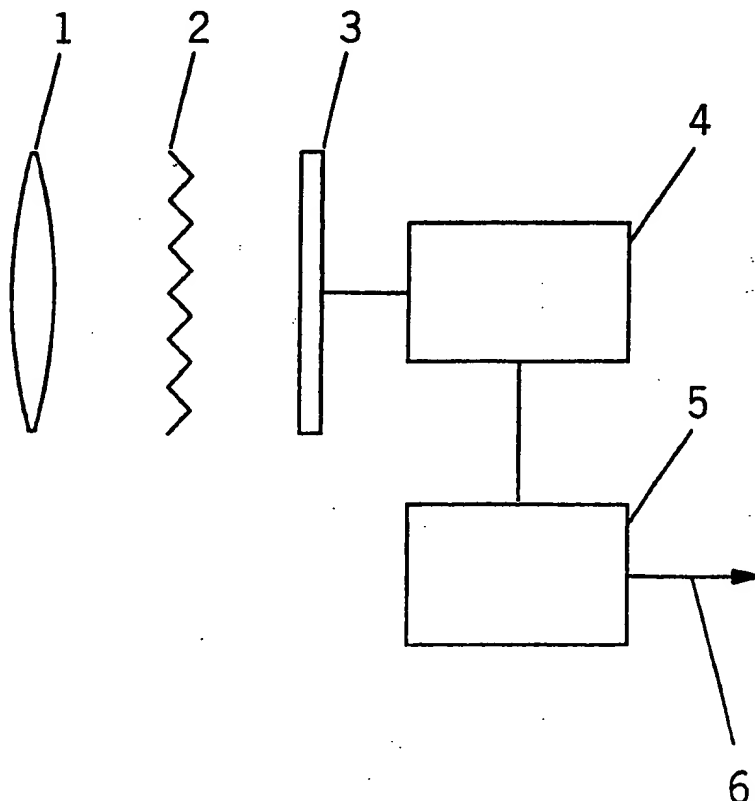
UK CL (Edition M) H4F FDX FJS FRX

INT CL⁵ H04N 5/228 7/12

Online database: WPI

(54) **Optical spatial filtering with electronic image compression**

(57) The image compression encoding system comprises a lens 1, an imaging CCD 3, an image compression encoding circuit 5 and an optical spatial filter 2 in place of the electronic spatial filter commonly used in bandwidth compression systems, so reducing the complexity and cost of the circuitry. The filter 2 may be on either side of, or included within, the lens 1, or on a reflective surface within the optical path.



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**FILTERING TECHNIQUE
FOR USE WITH
IMAGE COMPRESSION ENCODING**

This invention relates to the use of optical filtering to improve the quality of images passed through a system employing image compression.

Image Compression is used to reduce the bandwidth or memory normally required to send or store video images. Many of the current techniques rely on mathematical algorithms which require the incoming video to be preconditioned prior to compression. The usual technique is to pass the incoming signal through a digital signal processing device which performs this function electronically. The filter or preconditioning function usually needs to apply both in the horizontal and vertical dimensions of the image and this necessitates the use of line stores to store a number of lines from the video source. This technique is therefore relatively expensive as the silicon devices tend to be complex and large.

The invention described herein provides an alternative technique for performing the preconditioning or filtering function normally carried out by electronic circuits.

According to the present invention there is provided an image compression encoding system comprising a lens, an optical spatial filter to perform a preconditioning or filtering function, a television camera and an electronic image compression encoding circuit.

A specific embodiment of the invention will now be described by way of example with reference to the accompanying drawing.

Referring to the drawing the image compression system comprises a lens 1, an optical spatial filter 2, a CCD or other picture sensor 3, a camera electronics circuit 4, an image compression encoder circuit 5 with a compressed data output port 6.

The purpose of the optical spatial filter 2 is to significantly simplify and reduce the cost of the electronics contained within the image compression circuit 5.

CLAIMS

- 1 An image compression encoding system comprising a lens, an optical spatial filter to perform a preconditioning or filtering function, a television camera and an electronic image compression encoding circuit.
- 2 An image compression encoding system as claimed in claim 1 wherein the optical spatial filter is placed between the lens and the CCD or other picture sensing device of the camera.
- 3 An image compression encoding system as claimed in claim 1 wherein the optical spatial filter is placed in front of the lens.
- 4 An image compression encoding system as claimed in claim 1 wherein the optical spatial filter is attached to the lens.
- 5 An image compression encoding system as claimed in claim 1 wherein the optical spatial filter is effected within the lens.
- 6 An image compression encoding system as claimed in claim 1 wherein the optical spatial filter is etched or formed on either or both surfaces of the lens.
- 7 An image compression encoding system as claimed in claim 1 wherein the optical spatial filter is attached to the CCD or picture sensing device of the camera.
- 8 An image compression encoding system as claimed in claim 7 wherein the optical spatial filter is formed on one surface of a material where the thickness of the material is used to correctly space the optical spatial filter from the CCD or picture sensing device.
- 9 An image compression encoding system as claimed in claim 2, claim 3 and claim 4 wherein the optical spatial filter is formed on one surface of a material where the thickness of the material is used to correctly space the optical spatial filter from the lens.
- 10 An image compression encoding system as claimed in claim 1 wherein the optical spatial filter is etched, formed or attached to a reflective surface anywhere within the optical path.
- 11 An image compression encoding system wherein any combination of the preceding claims are used to perform the overall desired function.

Patents Act 1977

Examiner's report to the Comptroller under Section 17
(the Search report)

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Application number
GB 9311352.0

Relevant Technical Fields

(i) UK Cl (Ed.M) H4F (FDX, FJS, FRX)

(ii) Int Cl (Ed.5) H04N (5/225 7/12)

Search Examiner
MISS S E WILLCOX

Date of completion of Search
16 AUGUST 1994

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASE: WPI

Documents considered relevant
following a search in respect of
Claims :-

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Categories of documents

- V: Document indicating lack of novelty or of inventive step. P: Document published on or after the declared priority date but before the filing date of the present application.
- Y: Document indicating lack of inventive step if combined with one or more other documents of the same category. E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.
- A: Document indicating technological background and/or state of the art. &: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages		Relevant to claim(s)
X	EP 0531926 A1	(MATSUSHITA) see whole document	1, 2
X	EP 0449325 A2	(CANON) see whole document	1, 2
X	EP 0250147 A2	(POLAROID) see whole document	1, 2
X	EP 0038557 A2	(VISTOR) see whole document, especially Figure 2	1, 2, 3
A	US 4998800	(NISHIDA) see whole document	1, 2

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).